

M.D. B.H.M.S. Examination**Paper-II****Branch-I : Practice of Medicine (Research Methodology and Biostatistics)****Date : 05-05-2025, Monday]****[Max. Marks : 100****Time : 3 Hours]**

- Instructions :** (1) Answer to the point.
(2) Figure to the right indicates marks.
(3) Draw diagrams wherever necessary.
(4) Write legibly.
(5) Use separate answer books for each section.
(6) All questions are compulsory.

Q1 Problem based Question:**[20 marks]****1. Quantitative Research Design for Homeopathic Research**

A researcher wants to evaluate the effectiveness of Calcarea Carbonica in childhood obesity using a clinical trial.

- (a) What type of quantitative research design would be most suitable—randomized controlled trial, cohort study, or cross-sectional study? Justify your choice.
- (b) How would you determine the sample size and control variables for this study?
- (c) What statistical methods could be used to analyze the treatment outcomes?
- (d) Discuss the limitations and potential biases in using a quantitative approach for this research.

Q2. Long Answer Question:**[40 marks]**

1. Discuss the steps involved in conducting a systematic literature review?
2. Define inferential statistics and explain its importance in homeopathic research.
3. Discuss different methods of presenting research findings (research papers, posters, oral presentations).
4. Explain different types of sampling techniques (probability and non-probability sampling) with suitable examples from homeopathy.

[P.T.O.]

Q3. Short notes :

[40 marks]

- a) Measures of central tendency (mean, median, mode).
 - b) Ethical challenges in homeopathy research.
 - c) Types of clinical evidence in homeopathic research.
 - d) Steps involved in the research process.
 - e) Data cleaning & validation techniques
 - f) Role of probability in statistical analysis.
 - g) AI based tools for literature review and data analysis.
 - h) Types of errors in statistical inference (Type I & Type II)
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